Port of Tacoma
People. Partnership. Performance.
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October 16 2025

TO: **PLAN HOLDERS LIST**

SUBJECT: **CONTRACT NO. 071908**
THORNE ROAD OFF DOCK CONTAINER YARD

ADDENDUM NUMBER 03

This addendum is issued to amend the following:

00 01 10 - Table of Contents:

Attachment 1-Listed Items updated

01 20 00 - Price and Payment Procedures:

Attachment 2-Updated

13 34 19 - Building Systems:

Attachment 3-Updated

26 56 36 - Flood Lighting Fixtures:

Attachment 4-Updated

31 23 19 – Dewatering:

Attachment 5-Added

E22:

Updated

E30:

Updated

E40:

Updated

E42:

Updated

E80:

Updated

WO23-0096:

Updated

PROCUREMENT AND CONTRACTING REQUIREMENTS

SPECIFICATIONS

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Procedures for preparation and submittal of applications for progress payments.

1.02 PAYMENT PROCEDURES

A. Monthly pay estimates shall clearly identify the work performed for the given time period based on the approved Schedule of Values.

1. At the Pre-construction meeting, the Engineer and the Contractor shall agree upon a date each month when payment applications shall be submitted.

B. For each pay estimate the Contractor shall submit the following:

1. Completed Contractor invoice and updated Schedule of Values tracking sheet as required by Division 01 or as established by the Engineer.

2. Baseline Project Schedule and narrative updated as required by Section 01 32 16 of the Project Manual.

3. Completed “Amounts Paid to Subcontracts and Suppliers” showing total contract amount, amount paid this estimate, total paid to date, and balance owing.

4. Completed “Conditional Release and Waiver of Liens and Claims.”

5. An estimated cashflow statement projecting the Contractor’s monthly billings on the project shall be submitted with each payment application.

C. Prior to submitting a payment application, the Contractor and Engineer shall meet each month to review the work accomplished to determine the actual quantities including labor, materials and equipment charges to be billed.

1. Prior to the payment application meeting, the Contractor shall submit to the Engineer all measurement documentation as referenced in these contract documents; to include all measurement by weight, volume or field.

2. For all change work being done on a force account basis, the Contractor shall submit prior to meeting with Engineer all Force Account back-up documentation as required to process the payment application where Force Account work is being billed. The Engineer and the Contractor shall review the documentation at the payment application meeting to verify quantities and review the work accomplished.

3. The Contractor shall bring a copy of all documentation to the pay application meeting with the Engineer.

4. The Contractor shall submit the updated baseline project schedule for review prior to submitting the payment application to ensure the payment processing is not held up due to necessary schedule revisions.

D. Following the Engineers’ review, the Contractor shall submit the agreed upon pay estimate electronically, with complete supporting documentation, using Microsoft Dynamics 365, or as directed by Engineer.

1.03 PAYMENT PRICING

A. Pricing for the various lump sum or unit prices in the Bid Form, as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the work in accordance with the requirements of the Contract Documents.

B. Pricing also includes all costs of compliance with the regulations of public agencies having jurisdiction, including safety and health requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).

C. No separate payment will be made for any item that is not specifically set forth in the Bid Form, and all costs therefore shall be included in the prices named in the Bid Form for the various appurtenant items of work.

D. All other work not specifically mentioned in the measurement and payment sections identified below shall be considered incidental to the work performed and merged into the various unit and lump sum prices bid. Payment for work under one item will not be paid for under any other item.

E. The Port of Tacoma reserves the right to make changes should unforeseen conditions necessitate such changes. Where work is on a unit price basis, the actual quantities occasioned by such changes shall govern the compensation.

1.04 LUMP SUM MEASUREMENT

A. Lump sum measurement will be for the entire item, unit of Work, structure, or combination thereof, as specified and as indicated in the Contractor’s submitted bid.

1. If the Contractor requests progress payments for lump sum items, such progress payments will be made in accordance with an approved Schedule of Values. The quantity for payment for completed work shall be an estimated percentage of the lump sum amount, agreed to between the Engineer and Contractor, payable in monthly progress payments in increments proportional to the work performed in amounts as agreed between the Engineer and the Contractor.

1.05 MEASUREMENT OF QUANTITIES FOR UNIT PRICES

A. Measurement Standards:

1. All Work to be paid for at a contract price per unit measurement, as indicated in the Contractor’s submitted bid, will be measured by the Engineer in accordance with United States Standard Measures.

B. Measurement by Weight:

1. Reinforcing steel, steel shapes, castings, miscellaneous metal, metal fabrications, and similar items to be paid for by weight shall be measured by scale or by handbook weights for the type and quantity of material actually furnished and incorporated into the Work.

2. Unless shipped by rail, material to be measured and paid for by weight shall be weighed on sealed scales regularly inspected by the Washington State Department of Agriculture's Weights and Measures Section or its designated representative. Measurement shall be furnished by and at the expense of the Contractor. All weighing, measuring, and metering devices shall be suitable for the purpose intended and shall conform to the tolerances and specifications as outlined in Washington State Department of Transportation Standard Specifications, Division 1, General Requirements, Article 1-09.2, Weighing Equipment.
3. Provide or utilize platform scales of sufficient size and capacity to permit the entire vehicle or combination of vehicles to rest on the scale platform while being weighed. Combination vehicles may be weighed as separate units provided they are disconnected while being weighed. Scales shall be inspected and certified as often as the Engineer may deem necessary to ascertain accuracy. Costs incurred as a result of regulating, adjusting, testing, inspecting, and certifying scales shall be borne by the Contractor.
4. A licensed weighmaster shall weigh all Contractor-furnished materials. The Engineer may be present to witness the weighing and to check and compile the daily record of such scale weights. However, in any case, the Engineer will require that the Contractor furnish weight slips and daily summary weigh sheets. In such cases, furnish a duplicate weight slip or a load slip for each vehicle weighed, and deliver the slip to the Engineer at the point of delivery of the material.
5. If the material is shipped by rail, the certified car weights will be accepted, provided only actual weight of material will be paid for and not minimum car weights used for assessing freight tariff. Car weights will not be acceptable for material to be passed through mixing plants. Material to be measured by weight shall be weighed separately for each bid item under which it is to be paid.
6. Trucks used to haul material being paid for by weight shall be weighed empty daily and at such additional times as the Engineer may require. Each truck shall bear a plainly legible identification mark. The Engineer may require the weight of the material be verified by weighing empty and loaded trucks on such other scales as the Engineer may designate.

C. Measurement by Volume:

1. Measurement by volume will be by the cubic dimension indicated in the Contractor's submitted bid. Method of volume measurement will be by the unit volume in place or removed as shown on the Contract Drawings or as specified.
2. When material is to be measured and paid for on a volume basis and it is impractical to determine the volume by the specified method of measurement, or when requested by the Contractor in writing and accepted by the Engineer in writing, the material may be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Resident Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities will be accepted.

D. Measurement by Area: Measurement by area will be by the square dimension shown on the Contract Drawings or as specified. Method of square measurement will be as specified.

E. Linear Measurement: Linear measurement will be by the linear dimension listed or indicated in the Contractor's submitted bid. Unless otherwise indicated, items, components, or Work to be measured on a linear basis will be measured at the centerline of the item in place.

F. Field Measurement for Payment:

1. The Contractor shall take all measurements by providing equipment, workers, and survey crews as required to measure quantities in accordance with the provisions for measurement specified herein. No allowance will be made for specified tolerances.

2. The Engineer will verify all quantities of Work performed by the Contractor on a unit-price basis, for progress payment purposes.

1.06 REJECTED, EXCESS, OR WASTED MATERIALS

A. Quantities of material wasted or disposed of in a manner not called for under the Contract; rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the Contract; material not unloaded from the transporting vehicle; material placed outside the lines indicated on the Contract Drawings or established by the Engineer; or material remaining on hand after completion of the Work, will not be paid for, and such quantities shall not be included in the final total quantities. No additional compensation will be permitted for loading, hauling, and disposing of rejected material.

1.07 MEASUREMENT AND PAYMENT

A. Item #1: Mobilization and Demobilization

1. Payment for Mobilization and Demobilization shall be for preparatory work and operations performed by the Contractor including, but not limited to, those necessary for the movement of its personnel, equipment, supplies and incidentals to and from the project site; temporary facilities and controls; for the establishment and removal of its offices, buildings and other facilities necessary for work on the project; for other work and operations which it must perform or costs it must incur before beginning production work on the various items on the project site, and for removal of personnel, equipment, supplies, offices, building facilities, sheds, fencing, and other incidentals from the site.

2. Mobilization and Demobilization shall be paid at the lump sum price listed in the Contractor’s submitted bid. Incremental payment shall be made for each location as follows:

a. 40% after completion of 5% of the total contract amount of other bid items have been earned.

b. 40% after completion of 20% of the total contract amount of other bid items have been earned.

c. 20% after completion of all work on the project has been completed, including cleanup and acceptance of the project by the Port.

B. Item #2: Project Administration

1. Item Description: The Work of this item includes all administrative costs associated with administering and supervising the project including, but not limited to supervision of personnel, coordination of all work activities, coordination of subcontractors and/or suppliers, preparation and transmittal of submittals, permit acquisitions, for premiums on bonds and insurance for the project, and project overhead.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

C. Item #3: Demolition and Removal.

1. Item Description: Work includes the removal, wholly or in part, and satisfactory disposal of all utilities, fences, pavements, curbs, structures, or other features identified within these specifications and on the plans. **This item also includes TESC setup, maintenance, and modification as needed.** This item is for demolition and removal on Port property only.

[3]

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

CI. Item #4: Field Engineering.

1. Item Description: The Work of this item includes all work necessary for Field Engineering, verifying survey reference points, completion of pre and post-construction surveys, and installation and removal of temporary control as described in these Specifications.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

CII. Item #5: Clearing and Grubbing.

1. Item Description: Work of this item includes all labor, equipment, materials, and incidentals associated with clearing and grubbing the site. The work includes removal of vegetative materials, removal of roots, grubbing existing grade as indicated on the plans and in the specifications.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract price and Percent complete as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

CIII. Item #6: Earthwork.

1. Item Description: Work of this item includes all labor, equipment, materials, and incidentals associated with earthwork at the site. The work includes furnish and placement of imported fill material; site rough and final grading; compaction other work required to provide the subgrade area as indicated on the plans and in the specifications.

2. Measurement: This item will be measured by TON based on imported fill tonnage brought to the site and placed per plans and specifications.

3. Payment: This item will be paid for at the contract price per TON shown in the contractor's submitted proposal.

CIV. Item #7: Reefer Area.

1. Item Description: Work of this item includes all labor, equipment, materials, and incidentals associated with site features at the refer wash and valet area. The work includes placing the concrete curbs in the reefer valet and washdown area, wheel stops, ACP containment and reefer area improvements as shown in the specifications and plans.
2. Measurement: This item will be measured based on a percentage complete for the area constructed.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

H. Item #8: Chassis Repair Hut.

1. Item Description: This Work shall consist of constructing a chassis repair Quonset hut in accordance with the specifications and plans. The work includes utility connections as shown.
2. Measurement: This item will be measured based on the lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

I. Item #9: Guard Shelter.

1. This Work shall consist of furnishing and installing a guard shelter in accordance with the specifications and plans. The work includes utility connections as shown.
2. Measurement: This item will be measured based on the lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

J. Item #10: Electrical – Area 1 and Area 2.

1. Item Description: This work shall include the construction of the complete electrical and communications systems in the Areas 1 and 2 shown in plans and herein specified, including excavation, backfilling, concrete foundations, conduit, wiring, ducts, lights and supports and all other features required for the completed electrical systems.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

K. Item #11: Electrical – RR Crossing.

1. Item Description: This work shall include the construction of the complete electrical system at the proposed railroad crossing shown in plans and herein specified, including excavation, backfilling, concrete foundations, conduit, wiring, ducts, lights and supports and all other features required for the completed electrical systems.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

L. Item #12: Electrical – Area 3.

1. Item Description: This work shall include the construction of the complete electrical and communications systems in the Area 3 shown in plans and herein specified, including excavation, backfilling, concrete foundations, conduit, wiring, ducts, lights and supports and all other features required for the completed electrical systems.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

M. Item #13: Coarse Aggregate Base .

1. Item Description: Work of this item includes all labor, equipment, materials, and incidentals associated with import, placement and compaction of crushed aggregate base as indicated on the plans and in the specifications.
2. Measurement: This item will be measured by ton based on imported fill tonnage brought to the site and placed per plans and specifications.
3. Payment: This item will be paid for at the contract price per ton shown in the contractor's submitted proposal.

N. Item #14: Asphalt Paving.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the preparation, hauling, placing, spreading, and compacting of asphalt course(s) as specified or shown.
2. Measurement: This item will be measured on a TON basis for pavement completed, tested, and accepted.
3. Payment: This item will be paid per TON.

[1] ~~O. Item #15: Pavement Markings.~~

~~1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the preparation, layout, and application of pavement markings including striping, lettering, and numbering as specified or shown.~~

~~2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.~~

~~3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.~~

P. Item #16: Chain Link Fences.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the layout of site fence as specified or shown.
2. Measurement: This item will be measured based on lineal feet installed in place.
3. Payment: This item will be paid for at the Contract price per lineal foot price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

Q. Item #17: Gates 30'.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction of 30' gates as specified or shown.

2. Measurement: This item will be measured based on the number of gates installed and approved.

3. Payment: This item will be paid for at the Contract price per gate as specified in the Contractor’s submitted proposal, in accordance with the approved Schedule of Values.

R. Item #18: Sliding Gate 30'.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction of 30' sliding gate as specified or shown.

2. Measurement: This item will be measured for gate installed and approved.

3. Payment: This item will be paid for at the Contract price per gate as specified in the Contractor’s submitted proposal, in accordance with the approved Schedule of Values.

S. Item #19: Gate 24'.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction of 24’ gate as specified or shown.

2. Measurement: This item will be measured for gate installed and approved.

3. Payment: This item will be paid for at the Contract price per gate as specified in the Contractor’s submitted proposal, in accordance with the approved Schedule of Values.

T. Item #20: Misc Site Concrete, Barriers and Bollards.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the preparation, layout, and construction of all site features as specified or shown. This item includes but is not limited to items such as; bollards, protective cages, concrete barriers, concrete slabs and other items not specifically called out in other Work items.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor’s submitted proposal, in accordance with the approved Schedule of Values.

U. Item #21: Fire Protection System.

1. Item Description: This item shall be full pay for all Work to complete the installation of the water main and hydrants, including but not limited to, bedding, laying, and jointing of pipe and fittings, backfilling, concrete thrust blocking, testing, disinfecting of the pipeline, flushing, de- chlorination of water used for flushing, and cleanup; fire hydrants; and other related items as shown or specified. This item also includes the Knox boxes and signage required for Fire Department access at the main and emergency gates.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor’s submitted proposal, in accordance with the approved Schedule of Values.

V. Item #22: Water System.

1. Item Description: This item shall be full pay for all Work including but not limited to the installation and testing of the water main, meters, backflow valves, and valves, bedding, laying, and jointing of pipe and fittings, backfilling, concrete thrust blocking, testing, disinfecting of the pipeline, flushing, de- chlorination of water used for flushing, and cleanup; and other related items as shown or specified.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

W. Item #23: Reefer Recirculation Equipment and Enclosure.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction, placement and activation of reefer wash recirculation equipment and enclosure including all pipe, shipping container enclosure, footings, storage tank, wash hose connections and all related components for the completed system and commissioning as specified or shown.
2. Measurement: This item will be measured for system installed and approved.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

X. Item #24: Sanitary Sewer System.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction, placement and testing of all pipe, cleanouts, structures, sump pumps, and building connections and all related components for the completed system as specified or shown.
2. Measurement: This item will be measured for system installed and approved.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

Y. Item #25: Onsite Stormwater Gravity Conveyance .

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction, and testing of all pipe, structures, connections and other components for the completed system as specified or shown. This work does not include construction of BMT stormwater treatment system.
2. Measurement: This item will be measured for system installed and approved.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

Z. Item #26: Onsite Stormwater Treatment System .

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction of all pipe, structures, connections, liner, concrete structures, filtration media, and other components for the completed system as specified or shown.
2. Measurement: This item will be measured for system installed and approved.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

AA. Item #27: Rail Crossing.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction of the railroad crossing including but not limited to removal of existing track and OTM, excavation for crossing, installation of empty casings, fill and compaction of subgrade, reconstruction of track to standards, and paving for the complete crossing as specified or shown.
2. Measurement: This item will be measured for crossing installed and approved.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

BB. Item #28: Traffic Control Measures.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the Contractor provided traffic control plan required for work in the City of Tacoma right-of-way.
2. Measurement: This item will be measured completed measures.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

CC. Item #29: Sawcut and Removal of Existing Pavement, Curb and Sidewalk.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the sawcut, removal, and cleanup from demolition of existing features as specified or shown.
2. Measurement: This item will be measured completed demolition.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

DD. Item #30: Concrete Sidewalk.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the placement of concrete sidewalk as specified or shown.
2. Measurement: This item will be measured in square yards (SY) based on the area of sidewalk constructed.
3. Payment: This item will be paid for at the Contract price per square yard as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

EE. Item #31: Concrete Curb and Gutter.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the placement of concrete curb and gutter as specified or shown.
2. Measurement: This item will be measured in lineal feet based on length of curb constructed.
3. Payment: This item will be paid for at the Contract price per lineal foot as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

FF. Item #32: Street Lighting System.

1. Item Description: This Work includes all labor, equipment, materials, trenching, backfilling, structures, ducts and wiring, and incidentals associated with the construction of the street lighting system, and other components for the completed system as specified or shown.
2. Measurement: This item will be measured for system installed and approved.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor’s submitted proposal, in accordance with the approved Schedule of Values.

GG. Item #33: Landscape.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction of the right of way landscaping, and other components for the completed system as specified or shown.
2. Measurement: This item will be measured for landscaping installed and approved.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor’s submitted proposal, in accordance with the approved Schedule of Values.

HH. Item #34: Offsite Stormwater Gravity Conveyance and Treatment.

1. Item Description: This Work includes all labor, equipment, materials, trenching, bacfilling, and incidentals associated with the construction, and testing of all pipe, structures, connections and other components for the completed system as specified or shown. This item includes temporary patching of trenches or street plating in the roadway.
2. Measurement: This item will be measured for system installed and approved.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor’s submitted proposal, in accordance with the approved Schedule of Values.

II. Item #35: Coarse Aggregate Base .

1. Item Description: Work of this item includes all labor, equipment, materials, and incidentals associated with import, placement and compaction of crushed aggregate base as indicated on the plans and in the specifications.
2. Measurement: This item will be measured by ton based on imported fill tonnage brought to the site and placed per plans and specifications.
3. Payment: This item will be paid for at the contract price per ton shown in the contractor's submitted proposal.

JJ. Item #36: Asphalt Concrete Pavement - Street.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the preparation, hauling, placing, spreading, and compacting of asphalt course(s) as specified or shown.
2. Measurement: This item will be measured on a TON basis for pavement completed, tested, and accepted.
3. Payment: This item will be paid per TON.

KK. Item #37: Cement Concrete Pavement - Street.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the placement of cement concrete pavement as specified or shown.

2. Measurement: This item will be measured in square yards (SY) based on the area of sidewalk constructed.

3. Payment: This item will be paid for at the Contract price per square yard as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

LL. Item #38: Cement Concrete Driveway.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the placement of cement concrete driveway as specified or shown.

2. Measurement: This item will be measured in square yards (SY) based on the area of sidewalk constructed.

3. Payment: This item will be paid for at the Contract price per square yard as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

MM. Item #39: Sidewalk Ramps.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the construction of sidewalk ramps as specified or shown.

2. Measurement: This item will be measured based on the number of sidewalk ramps constructed and approved.

3. Payment: This item will be paid for at the Contract price per ramp as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

[1] ~~NN. Item #40: Pavement Markings.~~

~~1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the preparation, layout, and application of pavement markings including striping, lettering, and numbering as specified or shown.~~

~~2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.~~

~~3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.~~

OO. Item #41: Rail Crossing - Pedestrian.

1. Item Description: This Work includes all labor, equipment, materials, and incidentals associated with the preparation, layout, and installation of concrete sidewalk, asphalt crossing, detectable surfaces and other as specified or shown.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted proposal, in accordance with the approved Schedule of Values.

PP. Item #42: Unforeseen Conditions Allowance.

1. Item Description: This allowance will be for Unforeseen Conditions for work unidentified at the time of bid and will be paid as negotiated unit price(s) or lump sum(s). If unit prices or lump sums cannot be established, work will be paid on a time and materials basis per Section 00 72 00 General Conditions Article 8.0. Work under this bid item shall be accomplished upon written direction from the Engineer as a Minor Change in Work. The entire bid item may or may not be used.

2. Measurement: This item will be measured based upon the method agreed upon for each Minor Change issued.
3. Payment: This item will be paid for at the price agreed upon for each Change in Work issued by the Engineer in accordance with procedures noted in Section 01 26 00 – Change Management Procedures.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXEUCTION - NOT USED

END OF SECTION

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PART 1 - GENERAL

1.01 SCOPE

A. The work under this section consists of furnishing labor, materials, appliances, tools, equipment and incidentals and doing all work required for furnishing and installing the prefabricated attendant booth and the Quonset hut buildings as specified herein.

1.02 REFERENCES

A. American Institute for Steel Construction (AISC)

AISC 360 - Specification for Structural Steel for Buildings.

B. American Society of Civil Engineers (ASCE)

ASCE 7 - Minimum Design Loads for Buildings and Other Structures

C. American Society for Testing and Materials (ASTM)

ASTM A36 - Structural Steel

ASTM A123 - Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products

ASTM A153 - Zinc Coating (Hot Dip) on Iron and Steel Hardware

ASTM A513 - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing

ASTM A653/A - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

ASTM A1008/A - Standard Specification for Steel Bars, Carbon and Alloy, Cold- Finished

ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

ASTM B632/B632M - Standard Specification for Aluminum- Alloy Rolled Tread Plate

ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation

ASTM C1048 - Standard Specification for Heat-Treated Flat Glass - Kind Hs, Kind Ft Coated and Uncoated Glass

ASTM A446 - Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Structural (Physical) Quality

ASTM A500 - Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

D. American Welding Society (AWS)

AWS A2.0 - Standard Welding Symbols.

AWS D1.1 - Structural Welding Code Steel.

E. MBMA (Metal Building Manufacturers Association) - Metal Building Systems Manual.

F. National Fire Protection Association (NFPA): NFPA 70 - National Electric Code.

G. SDI-100 - Standard Steel Doors and Frames.

1.03 DESIGN REQUIREMENTS

A. General:

1. It is the responsibility of the Contractor to provide all information to the City of Tacoma necessary to obtain building permit and certificate of occupancy.

2. Design Criteria: Provide factory built, prefabricated structure capable of withstanding the effects of gravity loads and the design loads and stresses within limits and under conditions indicated below.

3. For structural steel members, comply with AISC 360 "Specification for Structural Steel Buildings".

4. For welded connections, comply with AWS Structural Welding Code D1.1.

B. Design Loads:

1. Design to local governing Building Code criteria for risk category II and loads shown on the drawings. Seismic design not required.

C. Design each member to withstand stresses resulting from combinations of loads that produce maximum percentage of actual to allowable stress in that member, as prescribed in MBMA "Metal Building Systems Manual".

D. Fabrication Criteria: Provide prefabricated metal buildings as produced by a manufacturer who is regularly engaged in fabrication and erection of pre- engineered metal structures of type and quality indicated.

E. Roof of pre fabricated buildings must support a human load for access and maintenance of roof top equipment. Excludes Quonset Hut structure.

F. Clearly and legibly mark each piece and part of assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.

G. Supports for mechanical, electrical, and equipment items.

1. Provide engineering, design, materials, and labor for the installation of structural members required to support mechanical, electrical, and equipment items.

H. Energy Code: Provide factory built, prefabricated structures that meet energy code requirements for the state the structure will reside in.

I. Thermal Movements: Provide factory built, prefabricated structures and shelters that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 degrees Fahrenheit (48.89 degrees Celsius), ambient; 180 degrees Fahrenheit (82.22 degrees Celsius), material surfaces.

J. Electrical Devices: Devices UL listed with wiring bearing UL classification and conforming to the current NEC.

1.04 SUBMITTALS

A. Product Data:

1. Submit manufacturer's product information and specifications for building components and accessories.

B. Shop Drawings:

1. Submit complete erection drawings showing anchor bolts settings, sidewall, endwall, and roof framing, transverse cross-sections, flashing details, covering and trim details, equipment supports, and accessory installation details to clearly indicate proper assembly of building components. Furnish stamp by a registered Professional Engineer, licensed in the State of Washington.

C. Furnish calculations, stamped by a Registered Professional Engineer, licensed in the State of Washington, showing that the building design meets the requirements of the specifications and is in accordance with accepted engineering practices and as per local governing building code.

D. Samples:

1. Submit samples of the following: Port’s review will be for color and texture only. Compliance with other requirements is the responsibility of the Contractor.

a. 12 inch (304.8 mm). long by actual width of roofing and siding panels with required finishes.

b. Fasteners for application of roofing and siding panels.

c. Sealants and closures.

2. Submit color samples for selection by Port. Allow one (1) color.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing prefabricated structures and shelters with a minimum documented experience of twenty years. The metal building systems manufacturer shall be accredited under the International Accreditation Service, Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems (AC472).

B. Prefabricated Components: Comply with manufacturer's published literature for products meeting indicated design loads in accordance with state and local requirements as applicable.

C. Design structural components and develop shop drawings under direct supervision of a Professional Engineer experienced in design of this work and licensed in the State of Washington.

1.06 REGULATORY REQUIREMENTS

A. Conform to local building codes and criteria for submission of design calculations, reviewed shop and erection drawings, as required for acquiring permits.

B. Cooperate with regulatory agency or authority and provide data as requested.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store prefabricated components, sheets, panels and other manufactured items so they will not be damaged or deformed. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight ventilated covering. Store metal sheets or panels so that water accumulations will drain freely. Do not store sheets or panels in contact with other materials that might cause staining.

1.08 WARRANTY

A. Manufacturer's Warranties:

1. Provide manufacturer's 1-year limited warranty on products of its manufacture to be free of leaks and defects in materials and workmanship from date of shipment.

2. Provide the manufacturer's 5-year limited warranty on anodized aluminum surfaces against oxidation.

3. Provide the manufacturer's 20-year limited warranty against peeling, flaking and chipping of prefinished deck and fascia when properly maintained.

B. Provide manufacturer's warrantees on all accessory items provided such as, but not limited to, air conditioning, lights, and heating units.

1.09 COLORS

A. Owner will select color from manufacturer’s standard colors.

PART 2 - PRODUCTS

2.01 MANUFACTURERS BUILDING SYSTEM

A. Acceptable manufacturers offering equivalent systems:

1. B.I.G. Enterprises, Inc.

2. Austin Mohawk and Company, Inc.

3. Shelters Direct.

4. Panel Built Incorporated.

5. National Partitions.

6. Or approved equal.

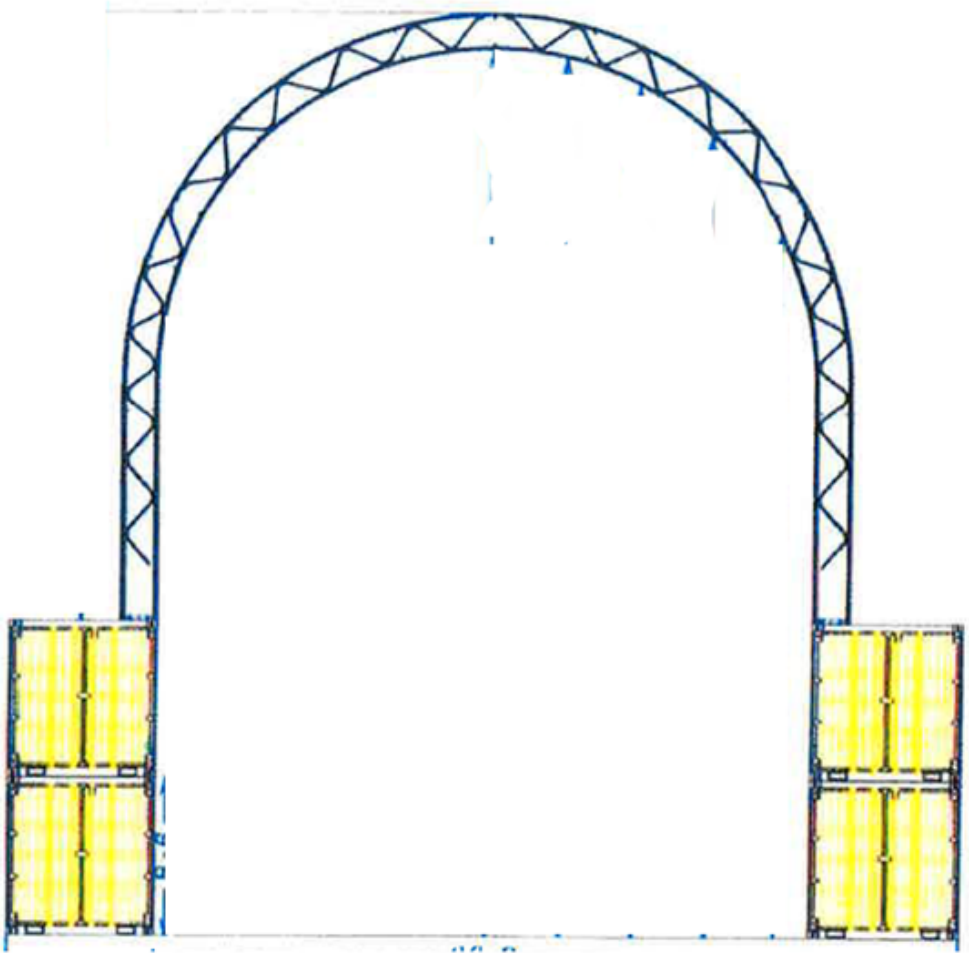
2.02 QUONSET HUT

A. Quonset Hut shall be manufactured by BigTop or approved equal. Contractor shall provide and install nominal 41’ x 48’ x 48’ (L x W x H) Quonset hut and empty containers to support the hut. The containers shall be two high and along the entire length of the hut.

B. Quonset hut: 48’ nominal height to inside top structure\

C. Hut to be mounted to rows of containers stacked 2 high and along the entire length of the Quonset hut supports.

D. Hut shall be secured to the containers as specified by the manufacturer.



[3] 2.03 MATERIALS

A. Cold- rolled Steel Sheet: ASTM A 1008/A, Commercial Steel (CS), type B.

B. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A, commercial quality, G60 (Z180)

C. Steel Mechanical Tubing: ASTM A 513. Welded steel mechanical tubing

D. Expanded Polystyrene (EPS) Cores: Minimum of .95 pcf complying with ASTM C578 Type 1.

E. Clear Tempered Float Glass: ASTM C1048, Kind FT, Condition A, type 1, Class 1, Quality q3.

F. Anchorages: Anchor bolts or adhesive anchors per structural notes, in Concrete float.

[3] 2.04 PREFABRICATED STEEL BUILDINGS

A. Prefabricated Steel Buildings:

B. Guard Shelter 20’ x 8’

C. Building Height: Nominal outside height 100 inches (2540 mm). Interior floor to ceiling height 90 inches (2286 mm).

D. Prefabricated with 2” x 2” x .083” A500 mechanical tube, welded framing system. Exterior smooth and flat with no exposed fasteners on building exterior.

1. Building design as shown on drawings.

E. Doors: Slide door as indicated on drawings.

F. Windows: As indicated on drawings

1. Glazing: ¾ inch 0.75 inch (19 mm) thick, insulated, low E., clear tempered safety glass.

G. Roof Type: Flat Deck Roof

H. Roof Overhang: 4” overhang with 4” fascia.

I. Frame Construction: Framing shall be minimum 2” x 2” x .083” A500 mechanical tube. All joints shall be MIG welded:

1. Finishes: Exterior shall have a manufacturer’s epoxy primer with a urethane finish.

2. Finish Color: Color as selected from manufacturers standard colors.

J. Wall Panel: Exterior face of manufacturers standard 16-gauge galvanized steel, an E.P.S. insulation core and a 16 gauge galvanized steel interior face. Panels shall be MIG welded into place.

1. Finishes: Interior and exterior panel faces shall have a manufacturer's epoxy primer with a urethane finish.

2. Finish Color: Color as selected from manufacturers standard colors.

K. Roof/Ceiling Assembly:

1. Shall be constructed using 16 ga Galvanized steel Roof Panels R- 19 insulation, drip angles and drain scuppers. Roof to be fully weather sealed with a three-step elastomeric membrane as follows:

a. All seams are sealed with a gun applied one-part polyurethane sealant.

b. The entire roof deck is then coated with a liquid applied one- part polyurethane coating forming a tough waterproof, weather-resistant elastomeric coating.

c. The entire deck surface finished with a white heat reflective polyurethane coating. The coating meets Energy Star reflectance and emissivity performance requirements and is approved by the Cool Roof Rating Council (CRRC).

2. Interior ceiling shall be 16-gauge. Galvanized Steel panel system providing smooth flat interior.

[3] 2.05 BUILDING ACCESSORIES

A. Sliding Doors: 1-3/4 inches (44 mm) thick, tubular-frame design.

1. Commercial Grade Steel Sliding Door: steel single lever handle lockset with keyed entry and interior thumb latch, and weather stripping.

B. Windows:

1. Window Type: Sliding Windows; clear tempered safety glass glazed within wall system extrusions and not fastened to the exterior wall. Glass sealed with concealed gasket system (standard).

a. End wall window panels.

2. Window Type: Horizontal Sliding Windows shall have a steel frame with clear tempered safety glass glazed. Windows to be equipped with locking device (standard), sill and weather stripping.
3. Glazing: Dual pane 1/4 inch (6.35 mm) thick, insulated, clear tempered safety glass.

C. Electrical Power Service: Provide in accordance with NEC Standards.
1. See electrical drawings and specifications.

D. Indoor Lighting Fixtures:
1. See electrical drawings and specifications.

E. Wall Heater/AC Unit
1. Fan forced in-wall electrical heater/AC.

[3] 2.06 FABRICATION

A. Fabricate factory built, prefabricated structures completely in factory.

B. Preglaze window and slide doors at factory.

C. Prewire factory built, prefabricated structures and shelters at factory, ready for connection to service at Project Site.

D. Separate dissimilar materials using nonconductive tape, paint, or other material not visible in finished work.

E. Fabricate factory built, prefabricated structures for crane unloading or forklift pockets under base or welded in place concealed lifting lugs at roof that are suitable for placement of the structure on prepared foundations.

[3] 2.07 FINISHES

A. Comply with National Association of Architectural Metal Manufacturers (NAAMM) "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine supporting foundations for compliance with manufacturer's requirements, including installation tolerances and other conditions affecting performance of supporting members.

B. Check installed anchor bolts for accuracy. Verify that bearing surfaces are ready to receive the work.

C. Verify the rough-in of required mechanical and electrical services prior to placement of the structure.

3.02 PREPARATION

A. If preparation is the responsibility of another installer, notify the Port in writing of deviations from manufacturer's recommended installation tolerances and conditions.

B. Do not proceed with installation until substrates have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions. Clean surfaces thoroughly prior to installation.

C. Commencement of installation constitutes acceptance of conditions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Separate dissimilar materials using nonconductive tape, paint, or other material not visible in finished work.

C. Anchor securely in place, allowing for required movement, including expansion and contraction.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair, or replace damaged products before Substantial Completion.

END OF SECTION

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. See Civil drawings for locations, backfill and concrete base requirements.

B. Wood poles shall be 95’ – 0”, Class 2, Douglas Fir, penta treated with metal cap and bird spikes.

C. Metal poles shall be 4” square, powder coat painted to match light fixture. Height varies as indicated on drawings. Provide with handhole, ground stud and anchor bolts. Provide #2 bare Cu from ground stud to anchor bolts and concrete rebar, See Civil for concrete base requirements.

D. Contractor shall paint (2 coats grey) all exposed galvanized steel on pole(s) utilized for equipment or light fixture mounting brackets. All mounting hardware shall be 316 stainless steel.

E. Contractor shall aim all lights per manufacturer’s coordinates and measure light levels 3’ above grade, on a 20’ x 20’ grid, for comparison with manufacturer’s computer generated photometric initial light level simulation for the site. Provide scaled site plan of field measured test values versus computer simulation for Engineer’s review. Contactor shall re-aim light fixtures or provide additional light fixtures if test values do not match or exceed manufacturers computer simulation values.

1.02 LIGHTING PERFORMANCE:

A. The lighting fixture manufacturer shall supply lighting equipment and computer generated point by point analysis(s) to meet the following:

1. Performance Criteria

a. The performance criteria requires lighting equipment which will provide initial minimum light levels of 3 footcandles.

b. Uniformity ratio. The footcandle level shall have a uniformity ratio of average to minimum of not greater than 4.5:1 or better.

2. Spill/Glare Light - Designated Areas

a. Maximum spill light values - light levels shall not exceed the designated maximum footcandles or average footcandles shown below. These levels shall be shown as initial footcandles and shall be measured at a distance of 30 feet from the property fence line.

From Defined Boundary	Horizontal Footcandles	Footcandles with meter aimed toward brightest light bank
Maximum Footcandles	.19	.72
Average Footcandles	.08	.34

B. Point By Point Analysis

1. Computer Models - Test Stations

a. Field test stations for the horizontal field measurements shall consist of points on an equally spaced 20' by 20' grid.

b. Spill/glare test stations shall consist of horizontal footcandles and maximum footcandles on a line as defined in 1.03 A, at 3' – 0" at the boundaries noted. Horizontal maximum footcandle readings shall be shown every 30 feet on the line.

c. Light fixture manufacturer shall provide a written guarantee of the light levels submitted.

d. All photometric calculations shall include light loss factors for all light fixtures to have internal louvers and glare shields.

PART 2 - PRODUCTS

2.01 SUBSTITUTES:

A. The following LED light fixtures have been pre-approved. The manufacturer is required to comply with 1.02 above prior to bid.

1. Spec Grade
2. Aquity (Lithonia)
3. Holophane

[3] 4. **Musco Sports Lighting**

5. Or equal

B. Substitute light fixtures must be equal or better than the specified light fixtures regarding, photometrics operating temperatures, durability of finish and general quality. All substitutes must be approved in writing by the Engineer prior to bid.

C. All light fixture manufacturers listed in 2.01, A 1-3 and other light fixture manufacturers requesting prior approval shall provide to the Engineer at the Engineers office a complete and fully assembled light fixture with internal louvers and glare shield for review and approval prior to bid. Sample light fixture shall be made available to the Engineer for a minimum of ten days for review.

2.02 LIGHTING PERFORMANCE AND MEASUREMENTS:

A. If the manufacturer requires additional light fixtures above the minimum light fixture quantity specified to meet the minimum footcandles levels specified, these fixtures may be added on poles where space and wiring capacity permit. Fixtures may only be added with prior written approval of the Engineer. Contractor shall include all additional equipment, labor and costs for these light fixtures in the bid.

B. Test and Measurement Procedures

1. All testing will be done with entire facility illuminated.
2. Horizontal footcandle readings shall be taken with the meter positioned horizontal 36 inches above grade. Maximum footcandles shall be taken with the test cell positioned 36 inches above grade and aimed at the brightest light source.
3. Ambient light levels shall be measured at the specified test stations. Maximum ambient footcandle level explored in all planes for each test station shall be recorded. Once the maximum spill light readings as defined have been recorded, subtract the ambient light readings from the respective footcandle readings at each test station.

4. Testing equipment for measurement of footcandle levels shall be a calibrated Gossen Panalux Electronic 2 light meter or an approved equal. For final approval of the project the manufacturer shall provide a final report from the test results that shall provide the following items:
    a. Identification of number and location of the test stations.
    b. Actual horizontal footcandle readings taken at each test station.
    c. Actual spill/glare footcandle readings taken at each test station.
    d. Total of hours of operation for the lighting system at the time of test readings.

C. In event the measured values do not meet specified levels adjusted up from maintained to initial levels, then Contractor after reviewing the uniformity ratio as calculated and the measured results, shall generate a new aiming diagram, and a computer plot to the satisfaction of the Engineer before re-aiming the fixtures. Contractor shall then re-aim and retest the fixtures at no additional cost to the Owner.

2.03 MATERIALS:

A. Exterior Fixtures
    1. Housings and appurtenances shall be corrosion resistant materials, such as non-ferrous metal, stainless steel, lexan or ferrous metal with approved special finish. All exterior fixtures shall be suitable for outdoor service without tarnishing or other damage due to exposure.
    2. Zinc or cadmium plate all metal parts concealed by canopies, including screws, plates, brackets and back boxes.
    3. Mounting hardware shall be galvanized steel, steel with powder coat finish, stainless steel or anodized aluminum. All screws shall be stainless steel.
    4. Provide manufacturer's standard colors.

PART 3 - EXECUTION

3.01 SETTING POLES:

A. All wood poles and steel pole concrete bases shall be carefully set to within 2 feet of designated spot. Refer to civil site plans and specifications for exact locations and backfill compaction requirements. All steel light pole handholes shall be located to face project North.

B. Anchor bolts shall be installed using approved pole manufacturer supplied templates.

C. Luminaire poles shall be installed plumb; utilize approved leveling nuts and/or baseplates.

END OF SECTION

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PART 1 - GENERAL

1.01 SCOPE

A. Designing, furnishing, installing, operating, maintaining, and removing a dewatering system and all additional machinery, appliances and equipment to keep excavations free from water during construction.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittal Procedures

B. Section 01 45 00 – Quality Control

C. Section 31 00 00 – Earthwork

1.03 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

B. Unless otherwise indicated, the most recent edition of the publication, including any revisions, shall be used.

C. Washington State Department of Transportation (WSDOT)

1. Standard Specifications for Road, Bridge, and Municipal Construction, M41-10.

1.04 SUBMITTALS

A. Within 14 days of Notice to Proceed, submit a Dewatering Work Plan with drawings and complete design data showing methods and equipment for dewatering necessary to keep excavations and pipe trenches dry during construction. As a minimum, include the following:

1. Drawings indicating the location and size of berms, dikes, ditches, sumps, and vacuum and discharge lines.

2. Capacities of pumps, prime movers, and standby equipment.

3. Design calculations providing adequacy of the system and selected equipment.

4. Detailed description of the dewatering schedule, operation, maintenance, and removal procedures.

5. Filter grain size.

6. Polymer supplier and procedure for using polymer for the treatment of dewatering water. Actual polymer and dosage to be used for treatment may be submitted separately after testing of dewatering water by polymer supplier.

7. List all permits required for dewatering and disposing of the dewatering discharge.

1.05 QUALITY ASSURANCE

A. The Contractor shall obtain all necessary permits and authorizations for collecting and disposing of the dewatering discharge.

B. It shall be the sole responsibility of the Contractor to control the rate and effect of the dewatering operations in such a manner as to avoid all settlement, subsidence, and undermining.

C. Dewatering systems shall be designed by the Contractor. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the Contractor.

1.06 SITE CONDITIONS

A. Subsurface investigations have been made at the project site. Groundwater conditions anticipated at the project site are described in the geotechnical report developed as part of this project entitled “Thorne Road Container Yard”, dated ~~April 24, 2020 and is provided in Appendix A.~~**February 25, 2022 and is available per Section 00 31 00 - Available Project Information.** **[3]**

B. Anticipate encountering groundwater at any location within the project site. The groundwater elevation varies depending upon proximity to the shoreline, soil conditions, tidal conditions, and weather.

C. The Contractor shall investigate and determine to its own satisfaction the extent and methods in which dewatering will be required to meet all required safety codes based on the nature of the existing soils and groundwater conditions.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 GENERAL

A. Maintain excavations and pipe trenches free from water to facilitate fine grading, construction of structures, the proper laying and joining of pipe and appurtenances, and placement of backfill material.

B. Dewater trenches during pipe laying and installation of ductbanks. Do not allow trench water to flow through the pipe while construction work is in progress. Provide an adequate screen to prevent the entrance of objectionable material into the pipelines.

C. Provide and maintain at all times during construction, ample means and devices with which to promptly remove and properly dispose of all water entering trenches and excavations and other parts of the work, whether the water be surface water or underground water.

D. Do not lay pipelines or foundations in water, nor allow water to rise over them until the concrete has set at least 24 hours or until the foundations or pipelines has been adequately backfilled to prevent buoyancy.

E. The electrical service used for dewatering shall be supplied separately from all other Contractor electrical requirements and dedicated solely to the operation of the dewatering systems. Adequate backup generator(s) shall be on site at all times in case of failure of primary electrical service.

3.02 DEWATERING PERMITS

A. Obtain all necessary permits for disposing of the dewatering discharge.

3.03 DEWATERING WORK PLAN

A. Allow at least five (5) working days for the Engineer’s review of any original or revised Dewatering Work Plan.

1. Failure to accept all or part of any such plan shall not make the Client liable to the Contractor for any work delays.

2. Approval of the Dewatering Work Plan submitted by the Contractor shall not in any way be considered to relieve the Contractor from full responsibility of errors therein.
3. Any testing or pumping the Contractor may wish to perform in order to assure a properly functioning dewatering system shall be at the Contractor's own cost.
4. Have and maintain on hand sufficient pumping equipment and machinery in good working condition for all ordinary emergencies, including power outage and flooding, and have available, at all times, competent workers for the continuous and successful operation of the dewatering systems.
5. The Contractor shall not be shut down between shifts, on holidays, or weekends, or during work stoppage without written permission from the Engineer.
6. Control groundwater so that softening of the bottom of excavations, or formation of "quick" conditions or "boils" during excavation is prevented.
7. Operate dewatering systems so as to prevent removal of the natural soils.
8. Maintain water levels a minimum of 2 feet below the bottom of all excavations at all times and under all conditions.
9. Keep excavations free of water during excavation, construction of structures, installation of pipelines, placement of gravel base, bedding and backfill, and placement and setting of concrete, prior to the acceptance of the work or any portion of the work.
10. Control surface runoff so as to prevent entry or collection of water in excavations or in other isolated areas of the site.

3.04 EQUIPMENT

A. Provide adequate pumping equipment to handle and dispose of the water without damage to adjacent property.

B. Maintain on site sufficient equipment and materials to insure continuous and successful operation of the dewatering systems.

C. If submersible/turbine pumps are used, provide one hundred percent standby electrical generating capacity.

D. Manifold each diesel or electrically-powered centrifugal pump to a diesel pump of equal or greater performance capability. Standby pumps shall be fueled and operational at all times. All standby centrifugal pumps and generators shall be tested daily to insure their immediate availability.

E. Maintain on site a minimum of 60 feet of each size and type of header or discharge pipe used in the system. A sufficient number of valves, tees, elbows, connections, tools, recorder charts and parts or other system hardware shall be maintained on site to insure immediate repair or modification of any part of the system as necessary.

3.05 DISCHARGE WATER

A. Meet requirements of all regulating agencies for quantity, frequency, quality, clarity and location of dewatering water discharge.

B. Dispose of discharge water in such a manner as not to be a nuisance or menace to the public health.

C. Groundwater may be discharged to the existing sewer system provided that the volume does not exceed the Contractor obtained permit quantities, that all permits are secured prior to any discharge, and that all other permit conditions and regulatory agency conditions are met. Discharge to the sewer system is limited.

D. Contractor may discharge groundwater to surface waters provided that all permits are secured by the Contractor prior to any discharge, and that all permit conditions are met. Contractor shall obtain all permits and meet all local, state, and federal requirements for surface water discharge.

3.06 PROTECTION OF STRUCTURES, UTILITIES AND SURFACES

A. Control dewatering of excavations to prevent damage from settlement due to possible lowering of the adjacent groundwater table.

B. The cost for repairs or cleanup resulting from overflow caused by Contractor’s dewatering practices shall be incurred by the Contractor and shall be considered incidental to the work.

C. Operate the dewatering system such that foundation soils, natural or engineered, will not be subject to fines removal upon pumping.

D. Repair any damage to work in place, contractors' equipment, and the excavation, including damage to the bottom due to heave and removal of material and pumping out of the excavated area, that may result from negligence, inadequate or improper installation, maintenance and operation of the dewatering system, and any mechanical or electrical failure of the dewatering system.

3.07 TREATMENT OF DISCHARGE WATER

A. If treatment of dewatering water prior to discharge is required, obtain the services of a polymer subcontractor/vendor to determine the appropriate polymer and dose for treating dewatering water. Polymer subcontractor/vendor shall visit site at the onset of the dewatering process to determine appropriate polymer and dose.

3.08 COMPLETION OF WORK

A. Subsequent to completion of all work in the excavated area, maintain the dewatering systems in operation. System maintenance shall include but not be limited to 24-hour supervision by personnel skilled in the operation, maintenance, and replacement of system components; standby and spare equipment of the same capacity and quantity in use; and any other work required to maintain the systems. Dewatering shall be a continuous operation and interruptions due to power outages or any other reason shall not be permitted.

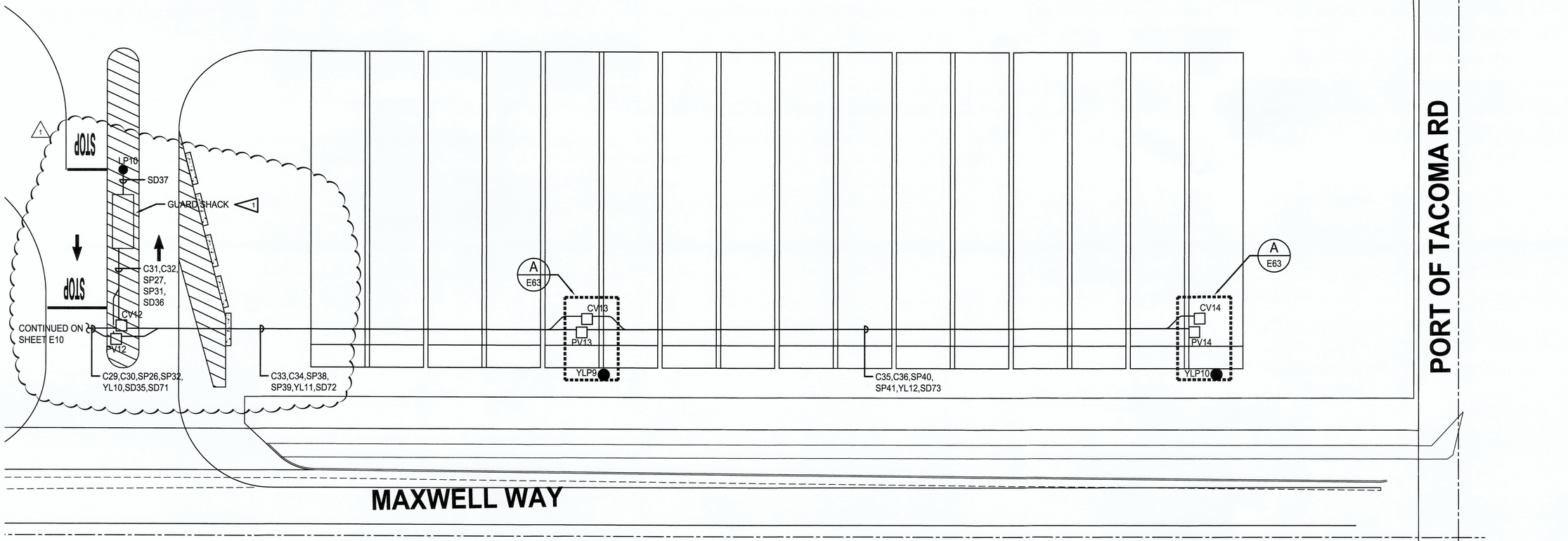
B. When no longer required, remove all dewatering system elements. Contractor shall assume ownership and responsibility for the disposal of all dewatering pumps, pipes and other assorted system hardware.

END OF SECTION

BINDING EDGE

ELECTRICAL NOTES:

7 POWER PANEL PROVIDED WITH GUARD SHACK. SERVICE DISCONNECT(S) AND DRY-TYPE TRANSFORMER TO BE MOUNTED ADJACENT TO GUARD SHACK ON MOUNTING STRUCTURE. SEE ELECTRICAL NOTES #4 AND #5 ON SHEET E3.0 FOR MOUNTING STRUCTURE REQUIREMENTS. REDUCE POSTS TO TWO (2) AND STRUT TO THREE (3).



PARTIAL ELECTRICAL SITE PLAN
SCALE: 1"=20'-0"

PROJECT NORTH
TRUE NORTH

NOTE: IF DRAWING IS LESS THEN 22"X34", IT IS A REDUCED SET

20' 0' 20' 40'
SCALE: 1"=20'

ISSUED FOR CONSTRUCTION
DATE: 2025-08-25

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

CROSS ENGINEERS, INC
Tacoma, WA 98402
info@crossengineers.com
Phone: (253) 779-4979
Job Number 21-112

MARK:	REVISION:	BY:	APPR:	DATE:
1	UPDATED ELECTRIC	SJK	SLH	10-13-2025

APPROVED:
DIRECTOR ENG. DATE

SLH 10/13/25
CHECKED BY DATE
SJK 10/13/25
PROJ. ENGR DATE

PRINTED BY: ScottK Oct 13, 2025
PORT ADDRESS:DNE SITCUM PLAZA
TACOMA, WA 98401-1837

DRAWING SCALE: AS NOTED

THORNE ROAD
THORNE ROAD PROPERTIES
PARTIAL ELECTRICAL SITE PLAN

TOWNSHIP: 21N	RANGE: 3E
DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933
PARCEL: 72, 85, & 87	SECTION: 34

6688
E22
63 OF 105

CONT/CONS:	071908
M. ID:	101241.01
PHASE:	IFC

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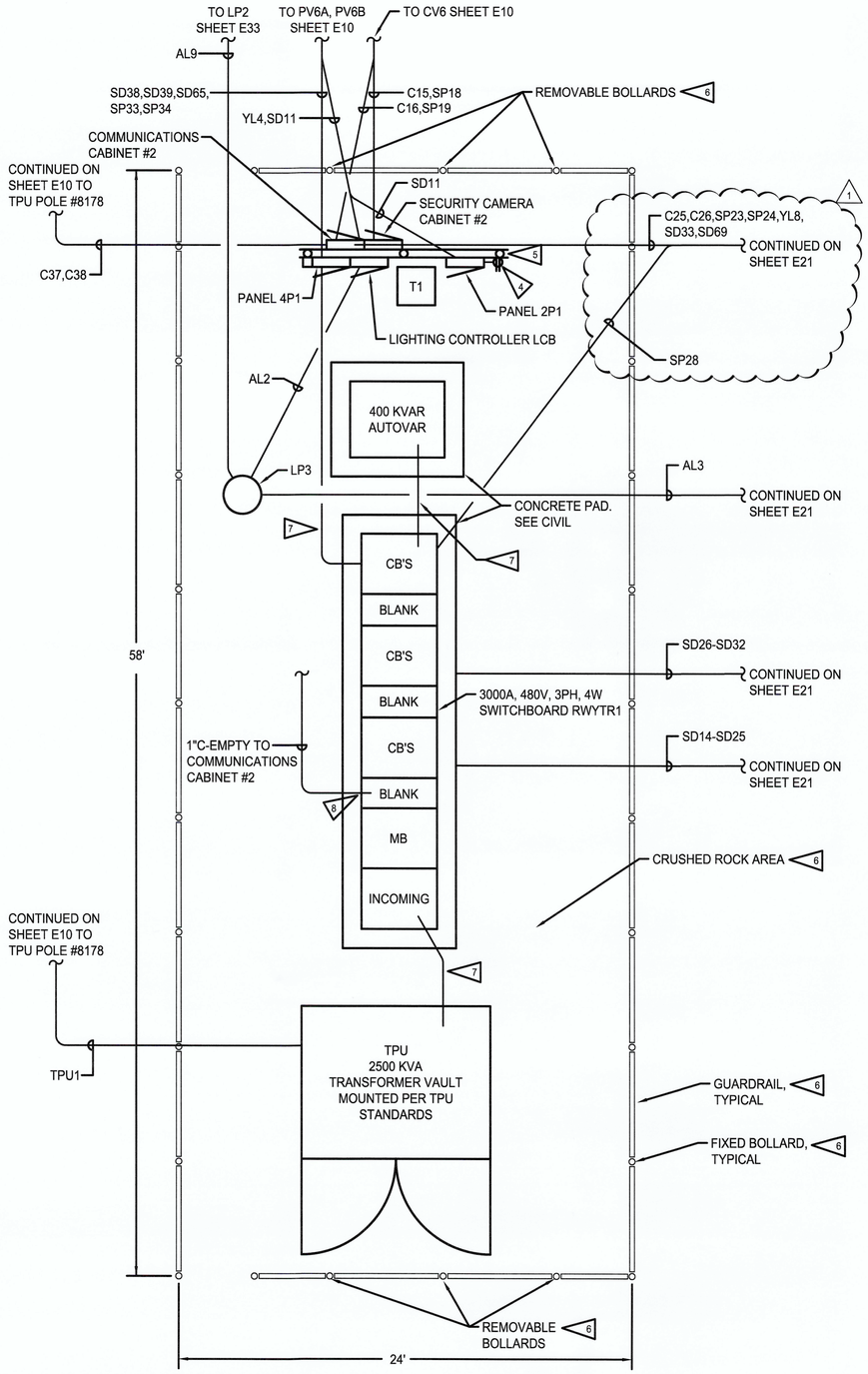
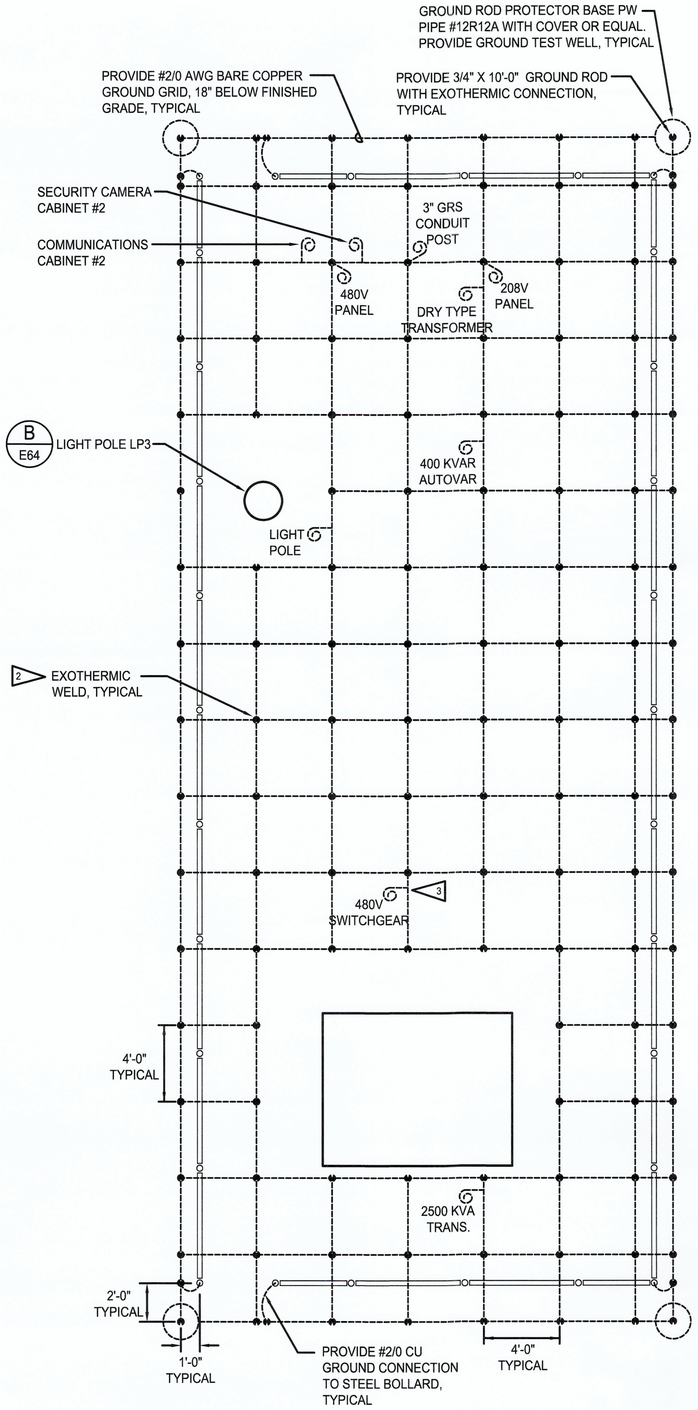
BINDING EDGE



ELECTRICAL SUBSTATION RWYTR-1 EQUIPMENT LAYOUT

SCALE: 1/4"=1'-0"



ELECTRICAL SUBSTATION RWYTR-1 GROUND GRID LAYOUT

SCALE: 1/4"=1'-0"

ELECTRICAL NOTES:

1. PROVIDE EACH CORNER AND EACH FIXED POST ADJACENT TO REMOVABLE POST WITH #2/0 AWG COPPER.
2. EXOTHERMIC WELD ALL BELOW GRADE GROUND GRID CONNECTIONS.
3. ALL PIGTAILS TO EQUIPMENT SHOWN SHALL BE #2/0 AWG BARE COPPER GROUND. PIGTAILS SHALL BE EXTENDED 3'-0" ABOVE FINISHED GRADE FOR CONNECTION TO EQUIPMENT.
4. PROVIDE 8'-0" SECTION OF 3" RIGID GALVANIZED STEEL CONDUIT WITH THREADED END CAP. PROVIDE 8" ROUND x 3'-0" DEEP, 3000 PSI CONCRETE BASE AND EMBED CONDUIT 3'-0" BELOW FINISHED GRADE. TYPICAL OF THREE (3). PAINT TWO (2) COATS SAFETY YELLOW.
5. PROVIDE (6)1-5/8" HOT DIP GALVANIZED STRUT BETWEEN RIGID STEEL CONDUIT POSTS FOR MOUNTING EQUIPMENT. DRILL CONDUIT AND PROVIDE STAINLESS STEEL MOUNTING HARDWARE FOR STRUT AND EQUIPMENT MOUNTING. PAINT TWO (2) COATS SAFETY YELLOW.
6. PROVIDE CRUSHED ROCK BASE INSIDE BOLLARDS AND RAIL. SEE CIVIL FOR CRUSHED ROCK, FIXED BOLLARDS, REMOVABLE BOLLARDS AND RAIL REQUIREMENTS.
7. SEE POWER RISER, SHEET E40.
8. REEFER CONTAINER MONITOR AND BOX PROVIDER BY TENANT. STUB CONDUIT INSIDE SWITCHBOARD.

PROJECT NORTH
TRUE NORTH

NOTE: IF DRAWING IS LESS THEN 22"x34", IT IS A REDUCED SET

4' 0' 4' 8'
SCALE: 1/4"=1'

ISSUED FOR CONSTRUCTION
DATE: 2025-08-25

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:
1	UPDATED ELECTRIC	SJK	SLH	10-13-2025

CROSS ENGINEERS, INC
609 MLK JR Way, Tacoma, WA 98405
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rob@crossengineers.com

STEVEN L. HIBBS — 19403 — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON
10/13/25

APPROVED:

DIRECTOR ENG. DATE

SLH	10/13/25			
CHECKED BY	DATE			
SJK	10/13/25			
PROJ. ENGR	DATE			

PRINTED BY: ScottK Oct 13, 2025
PORT ADDRESS:DNE SITCUM PLAZA
TACOMA, WA 98401-1837

THORNE ROAD
THORNE ROAD PROPERTIES
ELECTRICAL SUBSTATION LAYOUT

CONT/CONS:	071908	TOWNSHIP: 21N	RANGE: 3E
M. ID:	101241.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933
PHASE:	IFC	PARCEL: 72, 85, & 87	DRAWING SCALE: AS NOTED

SECTION: 34

6688
E30
66 OF 105

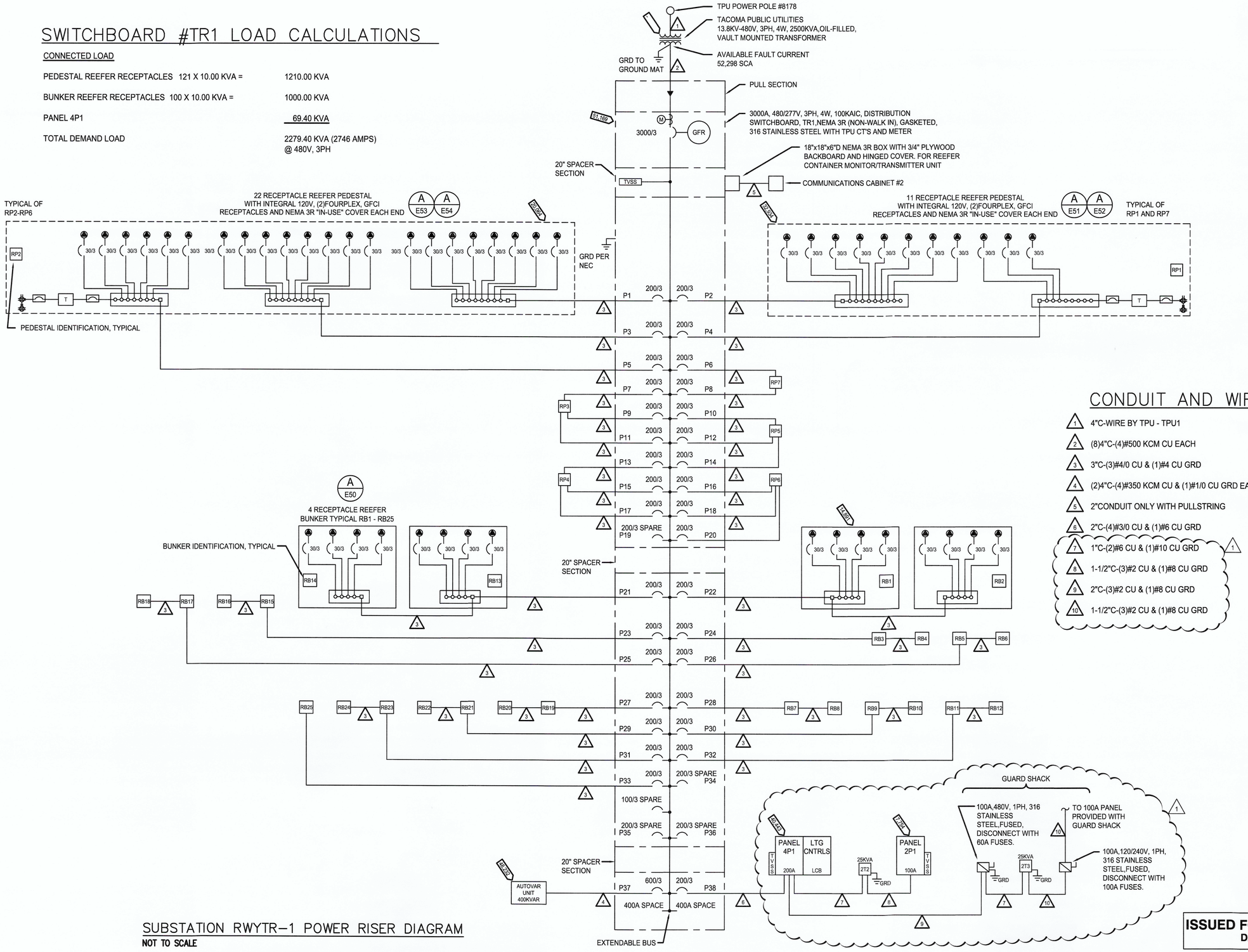
PORT OF TACOMA FILE: N:\Jobs\2021\21-112\Dwgs\21-112-E30

BINDING EDGE

SWITCHBOARD #TR1 LOAD CALCULATIONS

CONNECTED LOAD

PEDESTAL REEFER RECEPTACLES 121 X 10.00 KVA =	1210.00 KVA
BUNKER REEFER RECEPTACLES 100 X 10.00 KVA =	1000.00 KVA
PANEL 4P1	69.40 KVA
TOTAL DEMAND LOAD	2279.40 KVA (2746 AMPS) @ 480V, 3PH



SUBSTATION RWYTR-1 POWER RISER DIAGRAM

NOT TO SCALE

CONDUIT AND WIRE SCHEDULE

1. 4"C-WIRE BY TPU - TPU1
2. (8)4"C-(4)#500 KCM CU EACH
3. 3"C-(3)#4/0 CU & (1)#4 CU GRD
4. (2)4"C-(4)#350 KCM CU & (1)#1/0 CU GRD EACH
5. 2"CONDUIT ONLY WITH PULLSTRING
6. 2"C-(4)#3/0 CU & (1)#6 CU GRD
7. 1"C-(2)#6 CU & (1)#10 CU GRD
8. 1-1/2"C-(3)#2 CU & (1)#8 CU GRD
9. 2"C-(3)#2 CU & (1)#8 CU GRD
10. 1-1/2"C-(3)#2 CU & (1)#8 CU GRD

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DATE: 2025-08-25

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1	UPDATED ELECTRIC	SJK	SLH	10-13-2025

CROSS ENGINEERS, INC
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PROJ. ENGR	DATE		

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TACOMA, WA 98401-1837

THORNE ROAD
THORNE ROAD PROPERTIES
SUBSTATION POWER RISER DIAGRAM

TOWNSHIP: 21N	RANGE: 3E	SECTION: 34	
DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933		
PARCEL: 72, 85, & 87	DRAWING SCALE: AS NOTED		

6688
E40
67 OF 105

CONT/CONS: 071908
M. ID: 101241.01
PHASE: IFC

PORT OF TACOMA FILE: N:\Jobs\2021\21-112\Dwgs\21-112-E40

NEMA 3R, GASKETED, 316 STAINLESS STEEL

SURFACE MOUNTING
42,000 AIC

PANEL SCHEDULE

NO. **4P1**

LOCATION: SUBSTATION RWYTR-1
SERVING: LIGHTS

480/277 VOLTS 3PHASE 4WIRE
200 AMPS WITH 200 MAIN BREAKER

CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS		TRIP AMPS	KVA	LOAD DESCRIPTION	CKT NO.
1	LIGHTS YLP4,YLP5,YLP6,	30.75	60		30	3.00	UNIT SUB YLP4	2
3	YLP7,YLP8,YLP9,YLP10		-		2			4
5			3		30	3.00	UNIT SUB YLP5	6
7	SPARE		60		2			8
9			-		30	3.00	UNIT SUB YLP6	10
11			3		2			12
13	LCB - LIGHTING CONTROLS	3.50	15		30	3.00	UNIT SUB YLP7	14
15			2		2			16
17	SPACE		-		30	3.00	UNIT SUB YLP8	18
19	SPACE		-		2			20
21	PANEL 2P1	4.20	60		30	3.00	UNIT SUB YLP9	22
23	VIA 25KVA XFMR 2T2		2		2			24
25	GUARD SHACK PANEL	10.00	60		30	3.00	UNIT SUB YLP10	26
27	VIA 25KVA XFMR 2T3		2		2			28
29	SPACE		-				SPACE	30
31			-					32
33			-					34
35	SPACE		-					36
37	TVSS	-	30					38
39			-					40
41			3				SPACE	42

REMARKS: .

CONNECTED LOAD: 69.4 KVA 83 AMPS
DEMAND LOAD: 77.8 KVA 94 AMPS

1

PANEL 4P1 LOAD CALCULATIONS

SERVICE	KVA LOAD		FACTOR	NEC REF.		DEMAND LOAD
LIGHTING	30.75	X	1.25	220.19(A)(1)	=	38.44
RECEPTS TO 10KW	.18	X	1.00	220.44	=	.18
RECEPTS OVER 10KW	-	X	0.50	220.44	=	-
MOTORS (LARGEST)	2.50	X	1.25	430.24	=	3.13
MOTORS	-	X	1.00	430.24	=	-
KITCHEN EQUIP.	-	X	1.00	220.56	=	-
WELDERS	-	X	1.00	630.11(B)	=	-
AIR CONDITIONING	-	X	1.00	220.50	=	-
ELECTRIC HEAT	1.50	X	1.00	220.51	=	1.50
MISCELLANEOUS	34.50	X	1.00		=	34.50
TOTAL CONNECTED	69.4 KVA (83 AMPS)				TOTAL DEMAND	77.8 KVA (94 AMPS)

NEMA 3R, GASKETED, 316 STAINLESS STEEL

SURFACE MOUNTING
10,000 AIC

PANEL SCHEDULE

NO. **2P1**

LOCATION: SUBSTATION RWYTR-1
SERVING: MISCELLANEOUS

120/240 VOLTS 1PHASE 3WIRE
100 AMPS WITH 100 MAIN BREAKER

CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS		TRIP AMPS	KVA	LOAD DESCRIPTION	CKT NO.
1	RECEPTACLE	.18	20		20	2.50	GATE CONTROLLER	2
3	SECURITY CABINET HEATER	.50			2			4
5	COMM. CABINET HEATER	.50			20		SPARE	6
7	LCB CABINET HEATER	.50						8
9	SPARE							10
11					20		SPARE	12
13							SPACE	14
15								16
17	SPARE		20					18
19	SPACE		-					20
21			-					22
23			-					24
25	SPACE		-					26
27	TVSS		30					28
29			2				SPACE	30

REMARKS: .

CONNECTED LOAD: 4.2 KVA 18 AMPS
DEMAND LOAD: 4.8 KVA 20 AMPS

PANEL 2P1 LOAD CALCULATIONS

SERVICE	KVA LOAD		FACTOR	NEC REF.		DEMAND LOAD
LIGHTING	-	X	1.25	210.19(A)(1)	=	-
RECEPTS TO 10KW	.18	X	1.00	220.44	=	.18
RECEPTS OVER 10KW	-	X	0.50	220.44	=	-
MOTORS (LARGEST)	2.50	X	1.25	430.24	=	3.13
MOTORS	-	X	1.00	430.24	=	-
KITCHEN EQUIP.	-	X	1.00	220.56	=	-
WELDERS	-	X	1.00	630.11(B)	=	-
AIR CONDITIONING	-	X	1.00	220.50	=	-
ELECTRIC HEAT	1.50	X	1.00	220.51	=	1.50
MISCELLANEOUS	-	X	1.00		=	-
TOTAL CONNECTED	4.2 KVA (18 AMPS)				TOTAL DEMAND	4.8 KVA (20 AMPS)

ISSUED FOR CONSTRUCTION
DATE: 2025-08-25

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Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

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MARK:	REVISION:	BY:	APPR:	DATE:
1	UPDATED ELECTRIC	SJK	SLH	10-13-2025

STEVEN L. HUBBS — 10/13/25

SLH	10/13/25	APPROVED:	
CHECKED BY	DATE		
SJK	10/13/25	DIRECTOR ENG.	DATE
PROJ. ENGR	DATE	PRINTED BY:	ScottK Oct 13, 2025

THORNE ROAD
THORNE ROAD PROPERTIES
SUBSTATION PANEL SCHEDULES

PORT ADDRESS:DNE SITCUM PLAZA
TACOMA, WA 98401-1837

CONT/CONS:	071908	TOWNSHIP: 21N	RANGE: 3E	SECTION: 34	
M. ID:	101241.01	DAT-HRZ: WAB3-SF	VERT: MLLW 19.39' @ Tide 22 1933		
PHASE:	IFC	PARCEL: 72, 85, & 87	DRAWING SCALE: AS NOTED		

6688
E42
67 OF 105

BINDING EDGE

CONDUIT AND CONDUCTOR SCHEDULE

CIRCUIT ID	CONDUIT NO.	CONDUIT SIZE	CONDUIT TYPE	CONDUCTORS PER CONDUIT NO.	CONDUCTORS PER CONDUIT SIZE	CONDUCTORS PER CONDUIT TYPE	FROM	TO	REMARKS
TPU1	2	4"	②	-	-	-	(EX)TPU POLE #8178	TRANSFORMER VAULT SUB RWYTR-1	
SD1	1	4"	②④	4	600	600V	(EX)TPU POLE #8179	CT CAN	
SD2	1	4"	④	4	600	600V	CT CAN	PANEL 4M	
SD3	1	2"	②④	3/1	8/10	600V	PANEL 4M	PV1-US1	⑫
SD4	1	2"	②	3/1	8/10	600V	PV1	PV2-US2	⑫
SD5	1	2"	②	3/1	8/10	600V	PV2	PV3-US3	⑫
SD6	1	2"	②④	2/1	10/10	600V	PANEL 2A	GATE CONTROLLER	
SD7	1	4"	②④	-	-	-	PANEL 4M	PV4	
SD8	1	4"	②	-	-	-	PV4	PV5	
SD9	1	4"	②	-	-	-	PV5	FUTURE CHASSIS REPAIR SHELTER - STUB AND CAP	
SD10	1	1"	②④	2/1	12/12	600V	GATE CONTROLLER	FLASHING RAIL LIGHT	
SD11	1	2"	②④	2/1	8/10	600V	PANEL 2P1	PV6A	
SD12	1	2"	②	2/1	8/10	600V	PV6A	GATE CONTROLLER	
SD13	1	1"	②④	2/1	12/12	600V	GATE CONTROLLER	FLASHING RAIL LIGHT	
SD14	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P2	RP1	
SD15	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P4	RP1	
SD16	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P6	RP7	
SD17	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P8	RP7	
SD18	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P1	RP2	
SD19	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P3	RP2	
SD20	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P5	RP2	
SD21	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P7	RP3	
SD22	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P9	RP3	
SD23	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P11	RP3	
SD24	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P13	RP4	
SD25	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P15	RP4	
SD26	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P17	RP4	
SD27	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P10	RP5	
SD28	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P12	RP5	
SD29	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P14	RP5	
SD30	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P16	RP6	
SD31	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P18	RP6	
SD32	1	3"	②	3/1	4/0/4	600V	RWYTR-1,P20	RP6	△1
SD33	1	2"	②	3/1	2/8	600V	PANEL 4P1	PV10	
SD34	1	2"	②	3/1	2/8	600V	PV10	PV11	
SD35	1	2"	②	3/1	2/8	600V	PV11	PV12	
SD36	1	2"	②	3/1	2/8	600V	PV12	GUARD SHACK SERVICE	⑬
SD37	1	1"	②	2/1	12/12	600V	GUARD SHACK POWER PANEL	LP10	⑬
SD38	5	3"	②	3/1	4/0/4	600V	RWYTR-1,P22,24,26,28,30	PV6A	
SD39	9	3"	②	3/1	4/0/4	600V	RWYTR-1,P30,32,21,23,25,27,29,31,33	PV6B	
SD40	1	3"	②	3/1	4/0/4	600V	PV6A	RB1	
SD41	1	3"	②	3/1	4/0/4	600V	RB1	RB2	
SD42	1	3"	②	3/1	4/0/4	600V	PV6A	RB3	
SD43	1	3"	②	3/1	4/0/4	600V	RB3	RB4	
SD44	1	3"	②	3/1	4/0/4	600V	PV6A	RB5	
SD45	1	3"	②	3/1	4/0/4	600V	RB5	RB6	
SD46	1	3"	②	3/1	4/0/4	600V	PV6A	RB7	
SD47	1	3"	②	3/1	4/0/4	600V	RB7	RB8	
SD48	1	3"	②	3/1	4/0/4	600V	PV6A	RB9	
SD49	1	3"	②	3/1	4/0/4	600V	RB9	RB10	
SD50	1	3"	②	3/1	4/0/4	600V	PV6B	RB11	
SD51	1	3"	②	3/1	4/0/4	600V	RB11	RB12	
SD52	1	3"	②	3/1	4/0/4	600V	PV6B	RB13	
SD53	1	3"	②	3/1	4/0/4	600V	RB13	RB14	
SD54	1	3"	②	3/1	4/0/4	600V	PV6B	RB15	
SD55	1	3"	②	3/1	4/0/4	600V	RB15	RB16	
SD56	1	3"	②	3/1	4/0/4	600V	PV6B	RB17	
SD57	1	3"	②	3/1	4/0/4	600V	RB17	RB18	
SD58	1	3"	②	3/1	4/0/4	600V	PV6B	RB19	
SD59	1	3"	②	3/1	4/0/4	600V	RB19	RB20	
SD60	1	3"	②	3/1	4/0/4	600V	PV6B	RB21	
SD61	1	3"	②	3/1	4/0/4	600V	RB21	RB22	
SD62	1	3"	②	3/1	4/0/4	600V	PV6B	RB23	
SD63	1	3"	②	3/1	4/0/4	600V	RB23	RB24	
SD64	1	3"	②	3/1	4/0/4	600V	PV6B	RB25	⑪
SD65	1	2"	②④	8/4	6/10	600V	PANEL 4P1	PV6A - US4	⑫
SD66	1	2"	②	6/3	6/10	600V	PV6A	PV7 - US5	⑫
SD67	1	2"	②	4/2	6/10	600V	PV7	PV8 - US6	⑫
SD68	1	2"	②	2/1	6/10	600V	PV8	PV9 - US7	
SD69	1	2"	②④	6/3	6/10	600V	PANEL 4P1	PV10	⑫
SD70	1	2"	②	6/3	6/10	600V	PV10	PV11 - US8	
SD71	1	2"	②	4/2	6/10	600V	PV11	PV12	
SD72	1	2"	②	4/2	6/10	600V	PV12	PV13 - US9	⑫
SD73	1	2"	②	2/1	6/10	600V	PV13	PV14 - US10	⑫

SCHEDULE ABBREVIATION LEGEND:

C = COMMUNICATIONS

CV = COMMUNICATIONS VAULT

FOB = FIBER OPTIC

SD = SECONDARY 600V DISTRIBUTION

SC = SECURITY CAMERAS

SDV = SECONDARY POWER VAULT

YL = YARD LIGHTING

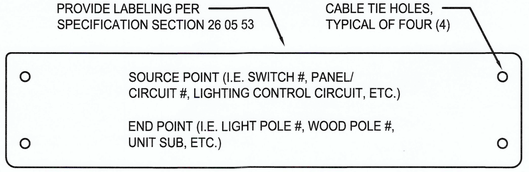
AL = AREA LIGHTING

SP = SPARE CONDUIT

TPU = TACOMA PUBLIC UTILITIES

WPC = WHERE-PORT COMMUNICATIONS

US = UNIT SUB TRANSFORMER ON YARD LIGHTING (YL) POLE



CONDUCTOR IDENTIFICATION LABEL
NOT TO SCALE

A
E80

SCHEDULE NOTES:

1. RED DYE CONCRETE ENCASE.
2. PVC SCHEDULE 80
3. 13.8KV CABLE FOR TPU
4. PVC COATED GRS CONDUIT
5. STUB AND CAP 12" ABOVE FINISHED GRADE.
6. PROVIDE MAXCELL EDGE DETECTABLE 3 CELL INNER DUCT. MAXCELL MXC2003 OR EQUAL EACH CONDUIT.
7. PROVIDE OUTSIDE PLANT (OSP), 24 FIBER COUNT, LOOSE TUBE, SINGLE JACKET FIBER CABLE. POT CONTRACTOR NIC.
8. PROVIDE (5)CAT 6 CABLES IN ONE CELL OF INNERDUCT.
9. REVIEW AND COORDINATE POWER CONNECTION WITH GATE ARM MANUFACTURER. COMMUNICATION'S WIRING BY OTHERS. SEE CIVIL.
10. PROVIDE FINGER SPLICE ON BOTH CABLE ENDS FOR CIRCUIT BREAKER AND PANEL TERMINATIONS.
11. SEE DETAIL A AND B, SHEET E6.3 FOR CONDUIT/CONDUCTOR REQUIREMENTS BETWEEN PV VAULT AND UNIT SUB MOUNTED ON LIGHT POLE.
12. SEE DETAIL A AND B, SHEET E6.3 FOR CONDUIT/CONDUCTOR REQUIREMENTS BETWEEN PV VAULT AND YARD LIGHT POLE LIGHTING CIRCUIT BREAKER MOUNTED ON POLE.
13. 100A, 120/240V, 1PH, 3W, POWER PANEL PROVIDED WITH GUARD SHACK.

ISSUED FOR CONSTRUCTION
DATE: 2025-08-25

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:
△	UPDATED ELECTRIC	S.JK	SLH	10-13-2025

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STEVEN L. HUBBS — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON
10/13/25

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PROJ. ENGR	DATE		
ScottK Oct 13, 2025			
SITCUM PLAZA			
TACOMA, WA 98401-1837			

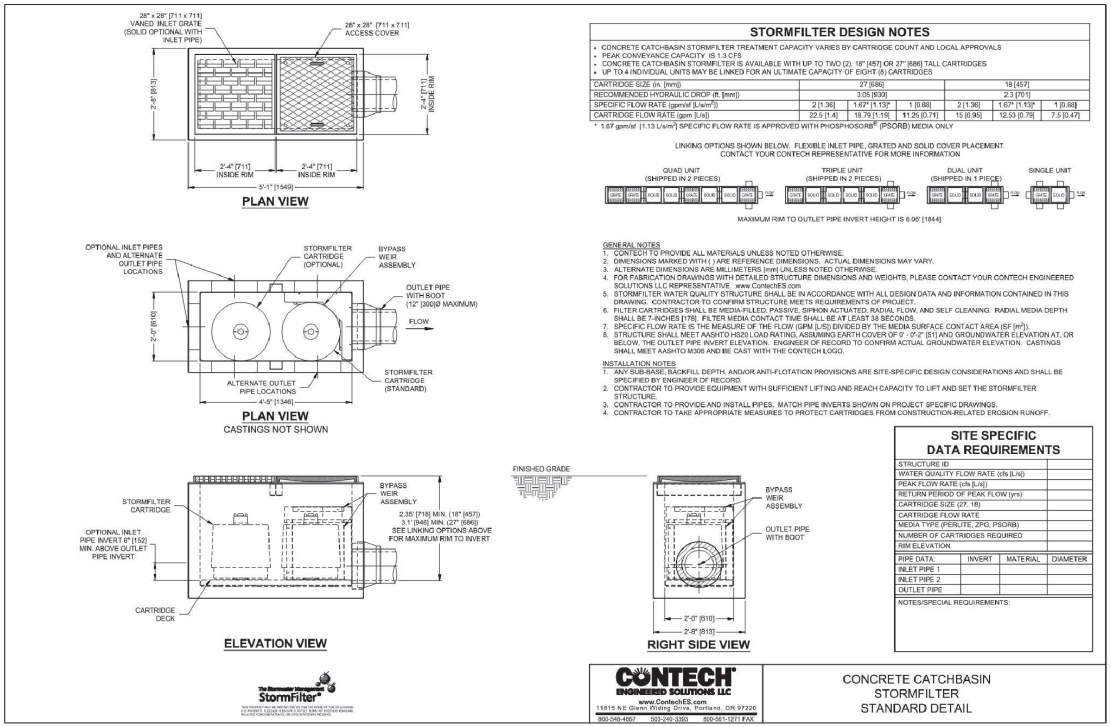
APPROVED:
DIRECTOR ENG. DATE
PRINTED BY: ScottK Oct 13, 2025
PORT ADDRESS: SITCUM PLAZA
TACOMA, WA 98401-1837

THORNE ROAD
THORNE ROAD PROPERTIES
CONDUIT AND CONDUCTOR SCHEDULE

CONT/CONS: 071908	TOWNSHIP: 21N	RANGE: 3E	SECTION: 34
M. ID: 101241.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE: IFC	PARCEL: 72, 85, & 87	DRAWING SCALE: AS NOTED	

6688
E80
80 OF 105

PORT OF TACOMA FILE: N:\Jobs\2021\21-112\Dwgs\21-112-E80



STORMFILTER DESIGN NOTES

- CONCRETE CATCHBASIN STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCAL APPROVALS
- PEAK CONVEYANCE CAPACITY IS 1.3 CFS
- CONCRETE CATCHBASIN STORMFILTER IS AVAILABLE WITH UP TO TWO (2), 18" [457] OR 27" [686] TALL CARTRIDGES
- UP TO 4 INDIVIDUAL UNITS MAY BE LINKED FOR AN ULTIMATE CAPACITY OF EIGHT (8) CARTRIDGES

CARTRIDGE SIZE (in. [mm])	27 [686]			18 [457]		
RECOMMENDED HYDRAULIC DROP (ft. [mm])	3.05 [930]			2.3 [701]		
SPECIFIC FLOW RATE (gpm/sf [L/s/m²])	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]
CARTRIDGE FLOW RATE (gpm [L/s])	22.5 [1.4]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.47]

* 1.67 gpm/sf [1.13 L/s/m²] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY

LINKING OPTIONS SHOWN BELOW. FLEXIBLE INLET PIPE, GRATED AND SOLID COVER PLACEMENT. CONTACT YOUR CONTECH REPRESENTATIVE FOR MORE INFORMATION

MAXIMUM RIM TO OUTLET PIPE INVERT HEIGHT IS 6.00' [1844]

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. ALTERNATE DIMENSIONS ARE MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
5. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM [L/S]) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF [m²]).
8. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2'-2" [51] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
3. CONTRACTOR TO PROVIDE AND INSTALL PIPES. MATCH PIPE INVERTS SHOWN ON PROJECT SPECIFIC DRAWINGS.
4. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
CARTRIDGE SIZE (27, 18)			
CARTRIDGE FLOW RATE			
MEDIA TYPE (PERLITE, ZPG, PSORB)			
NUMBER OF CARTRIDGES REQUIRED			
RIM ELEVATION			
PIPE DATA	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES/SPECIAL REQUIREMENTS:

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
11815 N.E. Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3383 800-561-1271 FAX

CONCRETE CATCHBASIN STORMFILTER STANDARD DETAIL

NOTE: THIS DETAIL APPLIES TO SDCB-MAX-2, SDCB-MAX-4, AND SDCB-MAX-6

1 — CONTECH CONCRETE CATCHBASIN STORMFILTER
SCALE: NTS

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	SDCB-MAX-2		
WATER QUALITY FLOW RATE (cfs[L/s])	0.0432		
PEAK FLOW RATE (cfs[L/s])	0.17		
RETURN PERIOD OF PEAK FLOW (yrs)	100		
CARTRIDGE SIZE, (27,18)	27		
CARTRIDGE FLOW RATE			
MEDIA TYPE (PERLITE, ZPG, PSORB)	ZPG		
NUMBER OF CARTRIDGES REQUIRED	2		
RIM ELEVATION	17.04		
PIPE DATA	INVERT	MATERIAL	DIAMETER
INLET PIPE 1	11.54	PVC	12"
INLET PIPE 2			
OUTLET PIPE 1	11.04	DI	12"

NOTES/SPECIAL REQUIREMENTS:

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	SDCB-MAX-4		
WATER QUALITY FLOW RATE (cfs[L/s])	0.0128		
PEAK FLOW RATE (cfs[L/s])	0.08		
RETURN PERIOD OF PEAK FLOW (yrs)	100		
CARTRIDGE SIZE, (27,18)	18		
CARTRIDGE FLOW RATE			
MEDIA TYPE (PERLITE, ZPG, PSORB)	ZPG		
NUMBER OF CARTRIDGES REQUIRED	1		
RIM ELEVATION	16.71		
PIPE DATA	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE 1	14.15	DI	10"

NOTES/SPECIAL REQUIREMENTS:

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	SDCB-MAX-6		
WATER QUALITY FLOW RATE (cfs[L/s])	0.0161		
PEAK FLOW RATE (cfs[L/s])	0.14		
RETURN PERIOD OF PEAK FLOW (yrs)	100		
CARTRIDGE SIZE, (27,18)	18		
CARTRIDGE FLOW RATE			
MEDIA TYPE (PERLITE, ZPG, PSORB)	ZPG		
NUMBER OF CARTRIDGES REQUIRED	1		
RIM ELEVATION	16.50		
PIPE DATA	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE 1	14.16	DI	10"

NOTES/SPECIAL REQUIREMENTS:

STRUCTURE	TYPE	STRUCTURE ID	DETAIL
SDCB-MAX-0	WSDOT CB TYPE 2 WITH RECTANULAR VANED GRATE	48"	3/WO.26 5/WO.26
SDCB-MAX-1	WSDOT CB TYPE 2 WITH RECTANULAR VANED GRATE	48"	3/WO.26 5/WO.26
SDCM-MAX-2	CONTECH CONCRETE CATCH BASIN WITH RECTANULAR VANED GRATE	4'-8" X 2'-4"	1/WO.27 5/WO.26
SDCB-MAX-3	WSDOT CB TYPE 2 WITH RECTANULAR VANED GRATE	48"	3/WO.26 5/WO.26
SDCB-MAX-4	CONTECH CONCRETE CATCH BASIN WITH RECTANULAR VANED GRATE	4'-8" X 2'-4"	1/WO.27 5/WO.26
SDCB-MAX-5	WSDOT CB TYPE 1 WITH COMBINATION INLET	26" X 22"	6/WO.26 1/WO.25
SDCB-MAX-6	CONTECH CONCRETE CATCH BASIN WITH RECTANULAR VANED GRATE	4'-8" X 2'-4"	1/WO.27 5/WO.26
SDCB-MAX-7	WSDOT CB TYPE 1 WITH COMBINATION INLET	26" X 22"	6/WO.26 1/WO.25
SDMH-MAX-0	CITY TYPE 1 SADDLE MANHOLE WITH CAST-IN-PLACE BASE AND SOLID COVER	54"	SU-20 SU-17 SU-22
(R) SWMH-6760144	CITY TYPE 1 WITH SOLID COVER	54"	SU-17 SU-22
(R) SWMH-6760113	CITY TYPE 1 WITH SOLID COVER	54"	SU-17 SU-22
(E) SWMH-6510828	REUSE EXISTING STRUCTURE	-	-
(R) SWMH-6510808	WSDOT CB TYPE 1 WITH RECTANGULAR VANED GRATE	26" X 22"	6/WO.26 5/WO.26
SDMH-MAX-1	CITY TYPE 3 SADDLE MANHOLE WITH CAST-IN-PLACE BASE AND SOLID COVER	48"	SU-20 SU-19 SU-22
(R) SWMH-6510798	WSDOT CB TYPE 1 WITH RECTANGULAR VANED GRATE	26" X 22"	6/WO.26 5/WO.26
SD INLET-POT-1	CONCRETE CURB INLET	2'-6" X 2'-0"	2/WO.25
SDMH-POT-1	CITY MANHOLE TYPE 3 WITH SOLID COVER	48"	7/WO.25 1/WO.26
SDCB-POT-2	WSDOT CB TYPE 2 WITH RECTANULAR VANED GRATE	48"	3/WO.26 5/WO.26
SD INLET-POT-2	CONCRETE CURB INLET	2'-6" X 2'-0"	2/WO.25

STRUCTURE TYPE AND DIMENSION INFORMATION

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY DATE
FIELD BOOKS
DATE 05/30/25 | SCALE AS NOTED
DESIGNED S.MAURYA | CHECKED L.WEIDEN
DRAWN BY B.FUENTES | PROJECT NAME
DRAWING NAME WO.27

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
THORNE ROAD
OFF DOCK CONTAINER YARD
ROAD FRONTAGE STORMWATER DETAILS 03
SITE AND BUILDING DIVISION

WO23-0096
WO.27
SHEET NO. 27 OF 45

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